

Discrete Water Quality and Special Studies Monitoring

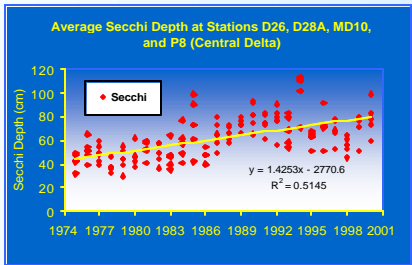
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California Department of Water Resources, Environmental Services Office, Sacramento



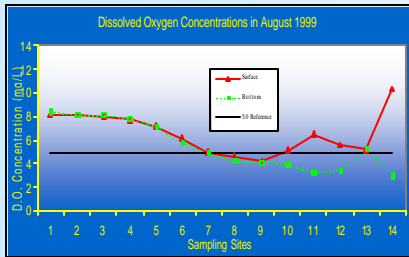
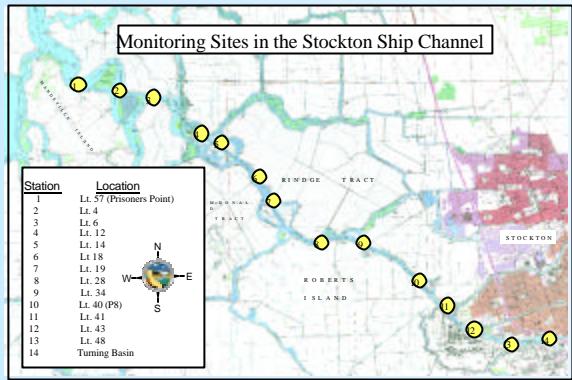
Sampling

Water quality monitoring began in 1970. Most of the water quality constituents measured today are among the original constituents measured in 1970. The most substantial changes occurred relatively recently with on-board recording of horizontal and vertical profiles of several constituents, and the deletion of 15 discrete sampling sites starting in 1996. Trace metal and pesticides monitoring was conducted through 1995.

Water samples are collected monthly for laboratory measurement of the following constituents: silica, dissolved solids, volatile solids, total suspended solids, chloride, total (Kjeldahl) nitrogen, dissolved organic nitrogen, orthophosphate, phosphorus, ammonia nitrogen, nitrite/nitrate, phytoplankton, and chlorophyll a concentration. In addition to Secchi disk depth and water column depth, vertical and horizontal profiles are conducted monthly at sites sampled by boat for the following constituents: water temperature, dissolved oxygen concentration, specific conductance, turbidity, and chlorophyll a fluorescence.



Long term data shows trends.

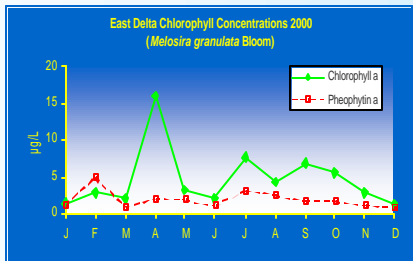
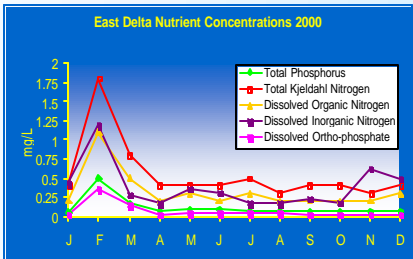


Typical late summer and early fall sag conditions in the Stockton Ship Channel.

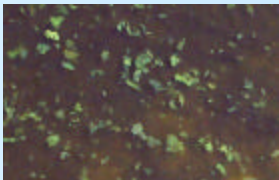
Special Studies

Dissolved oxygen is monitored to help staff from the Division of Operations and Maintenance determine if a temporary rock barrier should be placed across the head of Old River to increase net flows down the San Joaquin River past Stockton in the fall. Since 1968, DWR staff have measured dissolved oxygen concentrations in the Stockton Ship Channel during the late summer and early fall, when the San Joaquin River inflows to the eastern channel are usually lowest. The special study evaluates the commonly occurring oxygen depletion in this area. Historically, dissolved oxygen levels have dropped below 5.0 mg/L because of low stream inflows, warm water temperatures, high biochemical oxygen demand, reduced tidal circulation, and intermittent reverse flow conditions in the San Joaquin River past Stockton. Low dissolved oxygen levels can cause physiological stress to fish and block upstream migration of salmon.

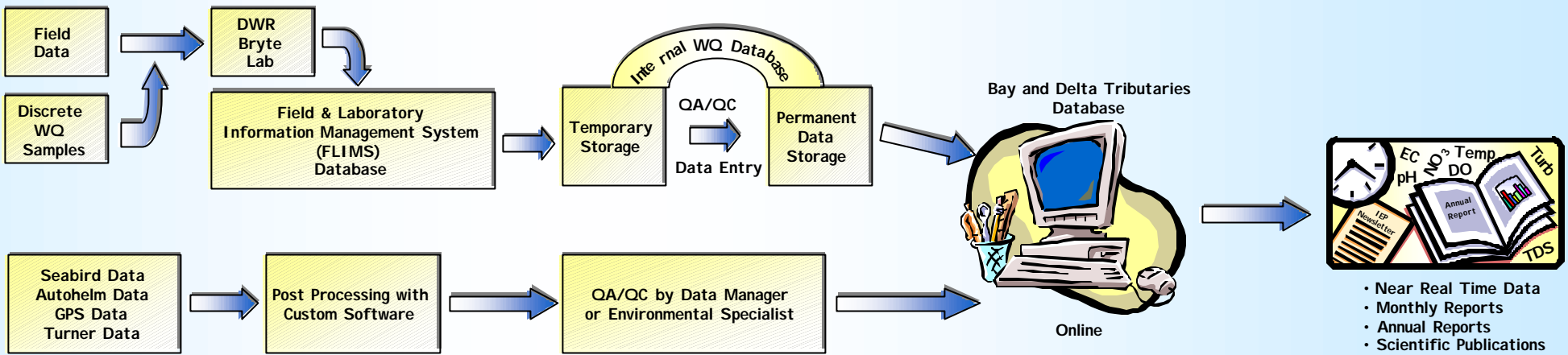
In addition to conducting special studies to address the needs of management, special studies are also scheduled to respond to changing environmental conditions as well as the findings of monthly and continuous monitoring. Algal bloom field surveys have been conducted since 1970 to define the extent and intensity of blooms detected previously in the Delta and to further clarify the biological, chemical, and physical processes leading to the initiation and development of the blooms.



Monthly monitoring runs help determine conditions that contribute to Algal Blooms.



From the System to the Server
(Data Collection and Management)



Data Availability

A historical database for the water quality monitoring elements with accompanying meta-data is currently available on-line at:

<http://sarabande.water.ca.gov:3000/~bdtclb/wq12.html>